

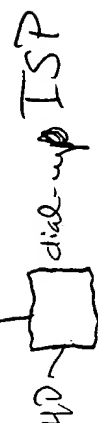
ns1.isp.provider.com

smtp 40, mail.provider.com
 backup mail exchange
 for customer's network

ns1.isp.provider.com



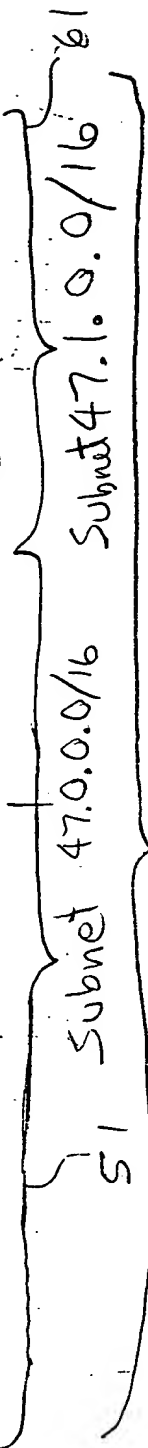
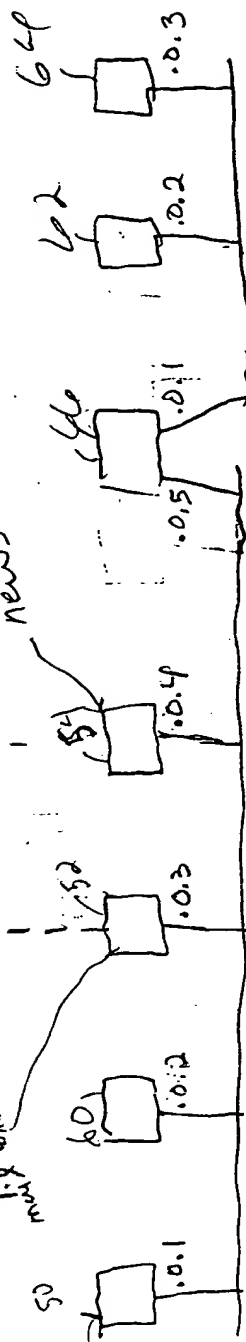
primary master
 name server
 for customer.com zone



point-to-point

primary
 mail exchange

news server



45

FIG. 1

FIGURE 1A

NAME	TYPE	CLASS	RDATA
customer.com.	SOA	IN	mname=ns1.nsprovider.com.
customer.com.	NS	IN	ns1.nsprovider.com.
mail.customer.com.	MX	IN	preference=0 exchange=dopey.customer.com.
mail.customer.com.	MX	IN	preference=10 exchange=smtp40.mailprovider.com.
www.customer.com.	CNAME	IN	grumpy.customer.com.
news.customer.com.	CNAME	IN	bashful.customer.com.
gw.customer.com.	CNAME	IN	dopey.customer.com.
grumpy.customer.com.	A	IN	47.0.0.1
sneezy.customer.com.	A	IN	47.0.0.2
dopey.customer.com.	A	IN	47.0.0.3
bashful.customer.com.	A	IN	47.0.0.4
happy.customer.com.	A	IN	47.0.0.5
happy.customer.com.	A	IN	47.1.0.1
hewey.customer.com.	A	IN	47.1.0.2
dewey.customer.com.	A	IN	47.1.0.3

FIGURE 1B - 1

NAME	TYPE	CLASS	RDATA
customer.com.	DTG_ID	IN	id=3711 rtstValid=false RTST=<undefined>
grumpy.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.0.0.1 inactive response type=1 text length=26 alternate RDATA length=<undefined> optional text=The network is unavailable optional alternate RR TTL=<undefined> optional alternate RDATA=<undefined>
sneezy.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.0.0.2 inactive response type=1 text length=0 alternate RDATA length=<undefined> optional text=<undefined> optional alternate RR TTL=<undefined> optional alternate RDATA=<undefined>
dopey.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.0.0.3 inactive response type=0 text length=0 alternate RDATA length=<undefined> optional text=<undefined> optional alternate RR TTL=<undefined> optional alternate RDATA=<undefined>

FIGURE 1B - 2

NAME	TYPE	CLASS	RDATA
bashful.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.0.0.4 inactive response type=2 text length=<undefined> alternate RDATA length=4 optional text=<undefined> optional alternate RR TTL=3600 optional alternate RDATA=128.83.17.101
happy.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.0.0.5 inactive response type=0 text length=0 alternate RDATA length=<undefined> optional text=<undefined> optional alternate RR TTL=<undefined> optional alternate RDATA=<undefined>
happy.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.1.0.1 inactive response type=0 text length=0 alternate RDATA length=<undefined> optional text=<undefined> optional alternate RR TTL=<undefined> optional alternate RDATA=<undefined>
hewey.customer.com.	DTG_INFO	IN	DTG identifier=3711 original RR type=A original RDATA length=4 original RDATA=47.1.0.2 inactive response type=0 text length=0 alternate RDATA length=<undefined> optional text=<undefined> optional alternate RR TTL=<undefined> optional alternate RDATA=<undefined>

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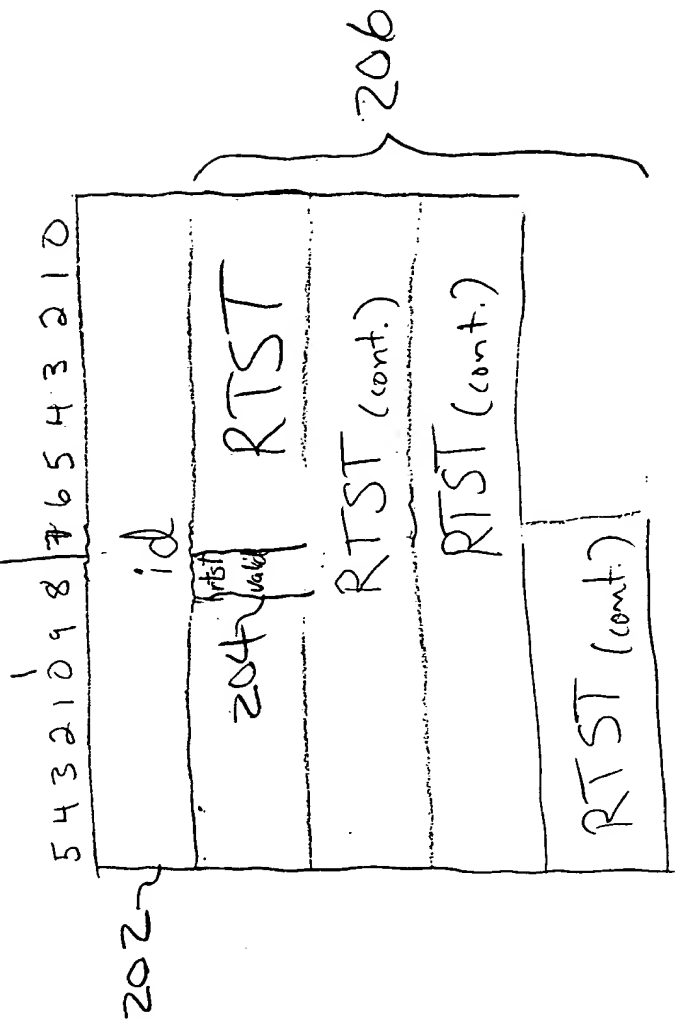


Figure 2

QUESTION

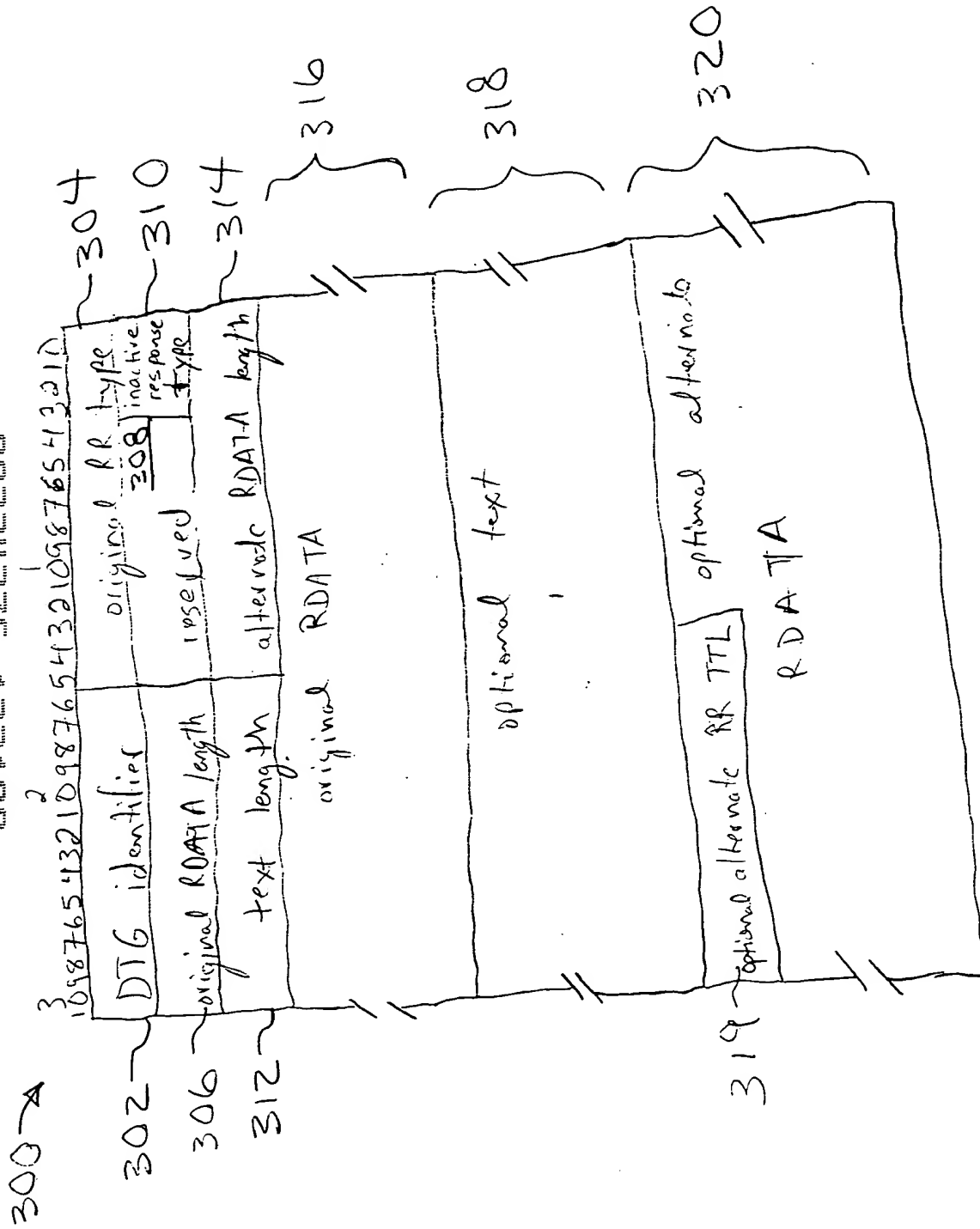


Figure 3

RTST RDATA Format

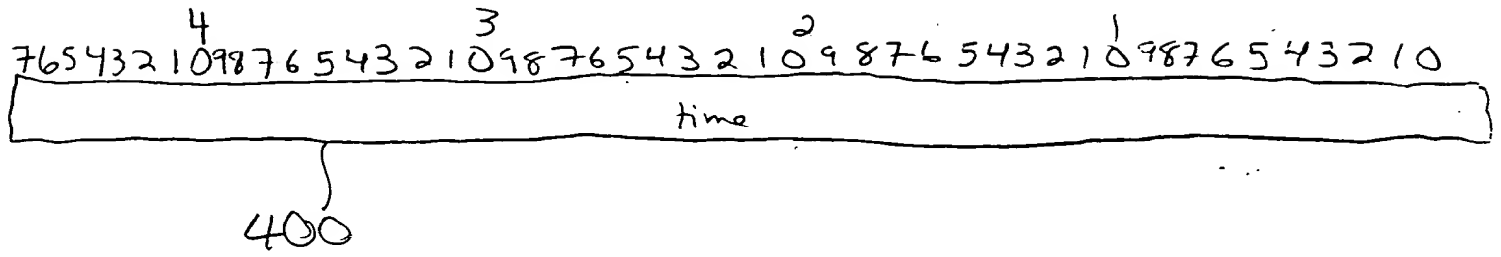


FIG. 4

Protocol Variables:

count=number of consecutive missed activatedDTG messages
 MINP=minimum permissible period
 sendP=period that the client is using to send activatedDTG messages
 sendSeq=sequence number for sending messages
 rcvSeq=sequence number for receiving messages
 DTG=the id of this DTG

Process Activate:

if(period<MINP || minP<>MINP) ~ 572
 send minPeriodInd(sendSeq, DTG, MINP); ~ 574
 sendSeq:=sendSeq+1 ~ 576
 if(requesting && period >= MINP) ~ 578
 send newPeriodReply(sendSeq, DTG, period); ~ 580
 sendSeq:=sendSeq+1; ~ 582
 sendP:=period; ~ 584

/MINP:=<any>, send minPeriodInd(sendSeq, DTG, MINP),
 sendSeq:=sendSeq+1

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deactivateDTG(seqNo, DTGid, rstValid, RTST)
 [seqNo>rcvSeq/rcvSeq:=seqNo, stop T,
 send deactivateDTGack(sendSeq, DTG),
 sendSeq:=sendSeq+1

520

Inactive

activatedDTG(seqNo, DTGid, requesting, period, minP)
 [seqNo>rcvSeq/rcvSeq:=seqNo,
 Process Activate

540

Active

entry/count:=0, reset T(sendP) ~ 544
 activateDTG(seqNo, DTGid, requesting, period, minP)[seqNo>rcvSeq]/
 rcvSeq:=seqNo, Process Activate, reset T(sendP) ~ 548

T expiry[count<k2]/count:=count+1, reset T(sendP) ~ 552

dtg created (dtg)/minP:=k0,
 sendP:=k1,
 sendSeq:=1,
 rcvSeq:=0,
 DTG:=dtg

514

Figure 5

Figure 6

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create dtg (dtg)/MINP:=k0, curP:=k1, sendSeq:=1, rcvSeq:=0;
DTG:=dtg, send activatedDTG(sendSeq, false, curP, MINP),
start T(curP), sendSeq:=sendSeq+1

UPR(r)<MINP/-

634

PeriodRequest/Acknowledged

T expiry/send activatedDTG(sendSeq, DTG, false, curP, MINP), sendSeq:=sendSeq+1, 622
reset T(curP)

minPeriodInd(seqNo, DTGid, minP)[seqNo>rcvSeq]/ 624
curP:=max(curP, minP),
MINP:=minP, rcvSeq:=seqNo

newPeriodReply(seqNo, DTGid, newPeriod) 625
[seqNo>rcvSeq/
rcvSeq:=seqNo

UPR(r)>=MINP && r=curP/- 626

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UPR(r)>=MINP && r<> curP/reqP:=r,
send activatedDTG(sendSeq, DTG, true, reqP, MINP),
sendSeq:=sendSeq+1,
reset T(min(timeRemaining(T), k3))

minPeriodInd(seqNo, DTGid, minP)
[seqNo>rcvSeq && minP>=reqP]/
rcvSeq:=seqNo, curP:=max(curP, minP),
MINP:=minP

newPeriodReply(seqNo, DTGid, newPeriod)
[seqNo>rcvSeq && newPeriod=reqP]/
rcvSeq:=seqNo, curP:=newPeriod,
reset T(curP)

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RequestingNewPeriod

T expiry/send activatedDTG(sendSeq, DTG, true, reqP, MINP), 644
sendSeq:=sendSeq+1, reset T(min(k3, curP))

minPeriodInd(seqNo, DTGid, minP)[seqNo>rcvSeq && minP<reqP]/ 646
curP:=max(curP, minP),
MINP:=minP, rcvSeq:=seqNo

UPR(r)>=MINP/reqP:=r 650

newPeriodReply(seqNo, DTGid, newPeriod) 652
[seqNo>rcvSeq && newPeriod<> reqP]/
rcvSeq:=seqNo

User Primitives:
UPR=user request
for a new period
UDR=user request
to deactivate DTG

Protocol Variables:
curP=current period
reqP=requested period
MINP=last reported
minimum period
from server
sendSeq=sequence
number for sending
rcvSeq=sequence
number for receiving
DTG=the id of this DTG

Deactivating

entry/send
deactivatedDTG(
sendSeq,
DTG, rst_valid,
rst),
reset T(k4)

deactivateDTGack(
seqNo,
DTGid)
[rcvSeq>seqNo]

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